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The human race is greatly handicapped by the presence of a good number of people who strenuously object to being disturbed. During a decade, generation, or century these good but sometimes unpleasant people plant themselves along certain lines in the domain of science or politics or religion, proclaiming essentially that "here and here only is the truth, and here we fix ourselves forever." After awhile they somewhat unwillingly and with no very good grace move forward into a new position, again honestly affirming and believing that the end has been reached. A better knowledge and a broader human sympathy would reveal to them the hitherto unsuspected fact that truth may at the same time be here and there.

In the dissemination of this knowledge and the cultivation of this sympathy, science should lead, not follow. No scientific organization so young in years has done more along these lines, especially by reason of its extensive membership and the vigor and enthusiasm of its branches, than the society over whose deliberations during the past year I have been permitted to preside.

For the honor thus bestowed I beg now to make my formal and grateful acknowledgements.

#### REMARKS UPON THE GRAPHIC SYSTEM OF THE ANCIENT MAYAS.

BY HILBORNE T. CRESSON, A.M., M.D.

A MAYA hieroglyph may be a single character by which a meaning is expressed by the sound of the name of the thing represented, or it may have a number of components that convey by a similar method a series of ideas. The 'glyphs of *Kukuitz* and of *Cauac* in the Codex Troano are examples, and another is that over the figure of *Kukulcan*, or *Ikilcab*, the so-called long-nosed god, of whom representations appear so frequently in the different Maya codices.

The figures of gods, with their head-dresses and the objects represented by the Maya scribes in the Codex Troano and other manuscripts, may be composed of a series of hieroglyphic elements suggesting the names of gods and their attributes or of some of the various characters which they impersonate. An example of this is the head-dress of the long-nosed god of the Codex Troano, which reads *Ikilcab*, while his girdle expresses by phonetic elements the name *Kukuitz*, who seems also to have been *Kukulcan*, *Ikilcab* or *Cauac*, and *Itzamna*. It is not improbable that *Kukuitz*, *Kukulcan*, *Ikilcab*, and *Itzamna* is the *Hunakbu*, or one God spoken of in the Codex Troano and referred to on the hieratic tablets, Casa No. 2, Palenque.

I notice that in the photographs of the ancient cities of Yucatan and other portions of Central America, that which we have hitherto considered as *architectural ornamentation* of Maya design is *ikonomatic decoration*, and a notable instance is the name *Chi-chen-itza* on the palaces of that ancient city, which are repeatedly recalled by *Chi* and *itza*, and less frequently by repetitions of the word *Chen*. I make this assertion subject to further alteration and improvement, as I have not examined the buildings themselves, being obliged to depend upon bad photographs and still worse wood-cuts.

The hieroglyphs and ikonomatic ornamentations of Palenque, *Chi-chen-itza*, Labna, Tikul, Lorillard City, and Copan, judging by photographs taken at these places, seem to be allied to one another, but those of *Uxmal* are more archaic, with the exception of Copan.

The plan I have adopted in my analysis of the various components of a 'glyph, those standing for the sounds of the names of the things represented, is based upon the idea that the Maya script, both hieratic and demotic, is similar to the higher grade of picture-writing suggested by M. Aubin, in his analysis of the name *Itz-co-atl*,—represented by the conventional sign for water, obsidian attachments to the shaft of the arrow, and a vase or pot,—which by reference to his work will more fully appear.

Proceeding upon this plan, I endeavored to analyze Landa's Key, and have found that the Maya scribe simply gave 'glyphs, whether simple or combined together, that carried out Landa's pronunciation of the Spanish alphabet, by means of characters which stood for the sounds of the names of these letters.

The hieroglyph of a tarantula or centipede, figured in the Troano plates—a claw pinching a rope attached to the foot of a deer-like animal, and also a hand attached to the same insect-like figure in the act of pinching—suggested the various curved 'glyphs of the verb *C<sup>hi</sup>* (Maya, to bite), which are, I believe, in connection with the parrot 'glyph, *Moo*, a part of the primitive elements of the Maya alphabet. From this I have obtained *Chá*, *Chā* (or *Che*), *Chi*, *Cho*, *Chu*, and from the *Moo* (parrot) 'glyph has been obtained *a*, *e*, *i*, *o*, *u*. This system has been applied successfully to the rendering of the components of the day-signs of the Troano manuscript and those of the Chilan Balaam of Káua, using Dr. Brinton's plates for the work—those published in his essay upon the books of "Chilan Balaam," pages 16 and 17.

In several cases certain 'glyphs, such as that of *Ikilcab*, *Cauac*, and *Itzamna*, have suggested meanings so clearly expressed that the words were easily found in the vocabulary of the Abbe Brasseur de Bourbourg, and had such a strong resemblance to objects and 'glyphs carried by the figures to which they belonged, that I venture to think the alphabet which I have arranged will eventually work successfully. It is based upon studies of the hieratic script made while at the Ecole de Beaux Arts in 1875-76-77, and work done on the Troano script in 1880; these researches being thrown aside and recommenced since Jan. 1, 1892.

Although Dr. Thomas and myself have proceeded in methods totally different from each other, and have never yet met to make comparisons, in quite a number of cases our methods have shown like results. I have mailed Professor D. G. Brinton, and the first-named gentleman, proof of this similarity of interpretation, and may also add that before I received a copy of Professor Thomas's "Key" I had mailed, and I venture to say both these gentlemen had received, my analysis and arrangement of the Maya signs of orientation, viz., *Chikin*, West; *Lakin*, East; *Schaman*, North; *Nohol*, South. My arrangement of these signs corresponds to that of de Rosny and Thomas. The first sign of orientation on the list was determined by the *Ch<sup>i</sup>* 'glyph.

I mention the correspondence of my work with that of Professor Thomas to show that this similarity of interpretation, referred to, cannot be the result of mere guess-work.

The aspirates and signs of repetition and the determinatives of the Maya Graphic System are most important, and I give them as Landa expresses it, and also by dotted lines in circles and curves. The phonetic value of the curve in the Maya alphabet is one of its strongest elements. Most of the characters in the key I have arranged are based on it and other natural suggestions of animate and inanimate nature—

such as the parrot eye, the biting mouth, and the mole-like teeth, the curved line of the serpent's body, and the beautiful outlines of the *antennæ* of the bee, also its sting, and last, not least, the graceful leaf of the maize, and other natural forms which are symbols of fertility.

It may be interesting to remark that the phonetic value of the *antennæ* of the bee was suggested by the third 'glyph, *Cauac*, on the *Kukuitz* bas-relief, left-hand side of the Casa No. 3, Palenque. This 'glyph was traced to more demotic forms on plate 25 of the Troano, also plate 24, where it is upheld by the Goddess *Cab*. Near the figure of *Cab* is the same infant-like figure that is to be seen on the so-called tablet of the cross of Palenque. The component characters of the 'glyphs composing this child's body refer to his name as *Ikilcab*, and this same name is expressed on the head-dress and hieroglyphs of the God-with-the-long-nose of the Troano, and other manuscripts, so-called by students to distinguish him. *Ikilcab* and *Cauac*, the *Cuch-haab*, are in some way clearly connected, for the components of the *Cauac* 'glyph of the day-signs of Landa and those of the Chilan Balaam of Kaua are closely connected with those of *Caban*. The *Cauac* 'glyph, if my interpretation be correct,

reads *Ikilcab*. The ancient Mayas probably thought of the bee as *Ikil*, the sting, and *Cab*, honey. The 'glyph of the day-sign, *Caban*, refers to that day-sign and *Ikilcab*, and is also the honey sign ("Bee Keeper's Narrative," the Codex Troano). The numeral signs of the Troano, both red and black, seem to have been used at times ikonometrically. The serpent symbol on plate 25, division 1, Troano, is *C'an*, and close to it are numerals giving the suggestion *Hunakbu*, the one God. On the sun symbol of this plate are numerals, which, in connection with the flute 'glyph (*Chul*) projecting above the sun-disk and the hand below pinching the machete, suggest the interpretation "a name," *Chu-kul-ca-can*.

Alliteration and syncapation for the sake of euphony are especially noticeable in the Maya language, but do not seem to be followed in the arrangement of their graphic characters, and no regularity of procedure, in reading the component parts of a 'glyph, seems to exist. As a general thing, however, some object carried in the hand of a figure, or placed near it, serves as a sort of a determination or suggestion; this is more frequently the case in the demotic than hieratic script.

#### Publications Received at Editor's Office.

AMERICAN JOURNAL OF POLITICS. Vol. I. No. 1. 35 cents.  
CHAMBERS'S ENCYCLOPEDIA. Vol. IX. Philadelphia, J. B. Lippincott Co. Imp. 8°. 80.  
CRESSON, HILBORNE T. Report upon Pile-Structures in Naaman's Creek. Cambridge, Peabody Museum. 8°. Paper. 21 p.  
NATIONAL POPULAR REVIEW. Vol. I. No. 1. San Diego, Cal., J. Harrison White. 25 cents.  
ROYAL SOCIETY OF VICTORIA. Transactions. Vol. II. Part II. Melbourne, The Society. 4°. Paper. 51 p.

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For information address Mr. FRITZ RUHL, President of the Societas Entomologica, Zurich-Hottingen, Switzerland.

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By LESTER F. WARD.

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